

FITCHBURG GAS AND ELECTRIC LIGHT COMPANY

D.T.E. 02- __

DIRECT TESTIMONY OF KAREN M. ASBURY

ELECTRIC DIVISION RATE REQUEST

May 17, 2002

Massachusetts Department of Telecommunications and Energy

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1 **I. INTRODUCTION**

2 Q. Please state your name and business address.

3 A. My name is Karen M. Asbury. My business address is 6 Liberty Lane West,
4 Hampton, New Hampshire 03842.

5

6 Q. For whom do you work and in what capacity?

7 A. I am Director of Regulatory Services for Unitil Service Corp. ("USC"), an
8 affiliate of Fitchburg Gas and Electric Light Company ("FG&E"). Both
9 companies are members of the Unitil System and subsidiaries of Unitil
10 Corporation. In this capacity, I am responsible for directing regulatory filings,
11 pricing research and analysis, pricing design, tariff administration, cost of
12 service calculations, economic analyses, customer research, and other
13 analytical services for FG&E's Gas and Electric Divisions and FG&E's
14 affiliates, Concord Electric Company ("CECO") and Exeter & Hampton
15 Electric Company ("E&H").

16

17 Q. Please describe your business and educational background.

18 A. In 1987, I graduated *magna cum laude* from the University of New Hampshire
19 with a Bachelor of Science Degree in Mathematics. I joined USC in January
20 1988 and have held various positions in the regulatory/rate department. I have
21 been involved in regulatory compliance and rate analysis for electric and gas
22 utilities for over ten years. I have attended several industry seminars and

1 courses, including the Edison Electric Institute's Electric Rate Advanced
2 Course at Indiana University.
3

4 Q. Have you previously testified before the Department of Telecommunications
5 and Energy ("Department")?

6 A. Yes. I have previously testified before the Department in numerous gas and
7 electric cases, including D.T.E. 98-51, FG&E's last gas rate case, D.T.E. 97-
8 115/98-120, FG&E's Electric Restructuring Plan and D.T.E. 99-110, FG&E's
9 2000 Electric Reconciliation Mechanism and Inflation Adjustment Filing. I
10 most recently submitted testimony in D.T.E 01-103, FG&E's 2002 Electric
11 Rate Reconciliation Adjustment Filing. I have also testified before the New
12 Hampshire Public Utilities Commission to support various filings of CECO
13 and E&H and participated in the preparation of filings for the Federal Energy
14 Regulatory Commission ("FERC").
15

16 **II. PURPOSE OF TESTIMONY**

17 Q. What is the purpose of your testimony in this proceeding?

18 A. I will present and explain the proposed changes to FG&E's distribution base
19 rates and transition charges. In addition, I will support the revised tariffs and
20 provide bill impact calculations.
21

1 Q. Are you sponsoring any schedules as part of your testimony?

2 A. Yes, I am sponsoring:

- 3 • Schedule KMA-1 (Electric), redline versions of proposed tariffs;
- 4 • Schedule KMA-2 (Electric), a summary table of rates;
- 5 • Schedule KMA-3 (Electric), worksheets for distribution base rate design;
- 6 • Schedule KMA-4 (Electric), a worksheet for the development of Uniform
- 7 Transition Charges for all customer classes;
- 8 • Schedule KMA-5 (Electric), a verification of Rate Cap compliance;
- 9 • Schedule KMA-6 (Electric), computations to assess the accuracy of test
- 10 year billing determinants;
- 11 • Schedule KMA-7 (Electric), tables to show bill impacts for Proposed
- 12 Rates vs. Inflation-Adjusted August 1997 Rates; and
- 13 • Schedule KMA-8 (Electric), tables to show bill impacts for Proposed
- 14 Rates vs. Present Rates.

15

16 **III. SUMMARY OF TESTIMONY**

17 Q. Please summarize your testimony.

18 A. My testimony starts with a description of the changes in FG&E's tariffs in
19 Section IV. The tariff revisions reflect the proposed changes to FG&E's rates,
20 which include changes to FG&E's distribution rates and transition charges. I
21 also summarize the proposed rates in a table for convenience. In Section V, I
22 describe how FG&E's distribution base rates are designed and how the

1 Department's traditional goals of rate design are incorporated into the rate
2 design process. I also discuss how the inflation adjusted 15% rate reduction
3 required by the Electric Restructuring Act affects the rate design process.
4 Finally, in Section VI, I discuss the bill impacts that result from FG&E's
5 proposed rate changes.

6

7 **IV. PROPOSED REDLINE TARIFFS**

8 Q. Is a copy of the proposed tariff changes included in this filing?

9 A. Yes. A copy of the proposed tariff changes is included in Volume I of this
10 filing. A red-line version of the tariffs are included as Schedule KMA-1
11 (Electric) to highlight the proposed changes.

12

13 Q. When does FG&E propose the tariff changes take effect?

14 A. The new rates and tariffs are proposed to become effective for usage
15 consumed on and after June 1, 2002.

16

17 Q. Can you briefly describe the changes in the tariffs?

18 A. Yes. FG&E's rate schedules have been revised to reflect FG&E's requested
19 distribution charges, as supported by the allocated cost of service analysis
20 provided by Mr. James. L. Harrison. FG&E also updated its transition
21 charges, as discussed herein. Finally, certain rate schedules have been
22 eliminated.

1 Q. Which services have been eliminated?

2 A. FG&E will no longer offer Optional Time-of-Use Rate RD-4 (“RD-4”) and
3 Optional Small General Delivery Time-of-Use Rate GD-6 (“GD-6”).
4

5 Q. Would you explain why Rates RD-4 and GD-6 are being eliminated from the
6 tariff?

7 A. Yes. The decision was driven by little or no participation in the rates and the
8 relative effectiveness of the rates in shifting load. Rate RD-4 averaged 3
9 customers in the test year and no significant load shifting was observed. The
10 average usage for RD-4 was 40% on peak and 60% off peak. Rate RD-4 is an
11 optional rate available to Residential Delivery Service Rate RD-1 (“RD-1”)
12 customers, thus the RD-1 rate is the appropriate replacement rate.
13 The GD-6 rate had no participation. Rate GD-6 is an optional rate to Small
14 General Delivery Service Rate GD-1 (“GD-1”) customers.
15 Eliminating these two low participation rates advances the goal of simplicity
16 and reduces the cost of rate administration.
17

18 Q. Have you summarized FG&E's rates in a table?

19 A. Yes. FG&E has provided a complete summary of its rates on Schedule KMA-
20 2 (Electric). The summary reflects changes to FG&E's distribution base rates
21 and transition charges discussed herein.
22

V. DISTRIBUTION BASE RATE DESIGN

A. POLICY CONSIDERATIONS

Q. What is your understanding of the Department's policy with respect to "rate structure"?

A. As the Department has stated, rate structure is defined by the pattern and level of charges to customers for utility service. The Department sets the rate structure by looking to the costs to serve each rate class and designs the rates to ensure that the class revenue requirement is obtained. The rate structure of a jurisdictional company must be efficient, simple, and ensure continuity of rates, fairness between rate classes, and corporate earnings stability. Berkshire Gas Co., D.T.E. 01-56, at 134-135 (2002).¹ The rate structure must communicate to consumers what the price of the product is, be cost-based, be easy to understand, and any changes should be gradual, so consumers can adjust utility consumption accordingly. No class of consumers should pay more than the costs to serve that class.

¹ Additional citations include: Boston Gas Co., D.P.U. 96-50 (Phase 1), at 133 (1996); Boston Gas Co., D.P.U. 93-60, at 331-332 (1993); Berkshire Gas Co., D.P.U. 92-210, at 201 (1993); Cambridge Electric Light Co., D.P.U. 92-250, at 163 (1993); Massachusetts Electric Co., D.P.U. 92-78, at 116 (1992); Nantucket Electric Co., D.P.U. 91-106/138, at 110-111 (1991); Western Massachusetts Electric Co., D.P.U. 90-300, at 13-15 (1991); and Boston Edison Co., D.P.U. 1720, at 112-120 (1984).

1 Q. What are the steps to determine rate structure?

2 A. Rate structure is determined by (1) cost allocation and (2) rate design. Cost
3 allocation assigns a portion of a company's total costs to each rate class in a
4 cost of service study ("COSS"). Rate design produces a set of prices intended
5 to generate a certain level of revenue for each class. Revenues generated by
6 each class should be sufficient to cover the cost of serving that class, and
7 should be based on a marginal cost study.

8

9 Q. How did the Massachusetts' restructuring of the electric utility industry affect
10 rate design policies?

11 A. Massachusetts law requires rates by customer class to be limited to 85% of the
12 inflation-adjusted rates in effect in August 1997. St.1997, ch. 164, Electric
13 Utility Restructuring Act. Additionally, rates for each customer class include
14 a Uniform Transition Charge ("UTC") which must be equal across all classes.
15 Any uncollected transition charge balances accrue interest at the rate of
16 12.45% per year. As demonstrated in the rate design proposed by FG&E, the
17 two requirements taken together provide further limitations in the rate design
18 process that must be considered with the traditional rate design goals.

19

20 Q. Why did FG&E redesign distribution base rates?

21 A. FG&E's distribution base rates were redesigned to reflect 2001 test year costs
22 as provided in the schedules of Mr. Harrison. Mr. Harrison conducted a fully

1 allocated cost of service study (“ACOSS”) and it is appropriate to use an
2 ACOSS as the basis for determining the cost each rate class should bear. This
3 is consistent with the Department’s policies as well as its’ goal of revenue
4 stability. Additionally, FG&E wanted to mitigate customers’ long term
5 obligations for repayment of transition costs by keeping the UTC as high as
6 practical while satisfying revenue requirement and restructuring limitations.
7

8 Q. How did FG&E redesign distribution base rates?

9 A. Generally, the process that FG&E followed in its rate design is as follows:

- 10 • First, *identify the class revenue targets*. The class revenue targets have
11 been developed by Mr. Harrison. There are several steps to this
12 computation; however, one of the key factors in developing the revenue
13 targets was that increases were capped at 125% of the total average
14 increase.
- 15 • Second, *identify the distribution function’s marginal costs*. These
16 calculations are supported by Mr. Harrison as well.
- 17 • Third, *set the energy and demand charges*, where applicable, at marginal
18 cost.
- 19 • Fourth, *reconcile the target revenue to be recovered on the customer*
20 *charge*, the least elastic portion of the rate.

- 1 • Fifth, ***make initial adjustments*** to all rate components in order to establish
2 initial rates to determine class transition charges in light of rate cap
3 requirements.
- 4 • Sixth, ***calculate the UTC in accordance with restructuring guidelines***,
5 and recalculate target revenue in order to maintain the highest possible
6 UTC.
- 7 • Seventh, ***make final refining adjustments***, including changing customer
8 charges where appropriate. Consider current rates in light of goal of rate
9 continuity and restructuring limitations.
- 10 • Finally, ***reconcile target revenue on remaining component(s)*** and verify
11 rate cap has been met.

12
13 Q. What were FG&E's objectives in using this process?

14 A. The objective of the process was to create rates that reasonably balance the
15 often competing goals for rate structure as defined by the Department's
16 policy, while adhering to the constraints imposed by restructuring. A key
17 objective of FG&E in this process was to maximize the UTC, in order to
18 minimize deferrals and carrying costs that would be paid by customers in the
19 future. The process also respects the underlying objectives identified by the
20 Department for cost allocation and rate design, namely that cost allocations
21 are based on cost causation and rate design is based on marginal costs.
22 Additionally, the proposed rates for each class are designed to generate

1 revenue to cover the cost of serving that class, given the constraints of
2 restructuring. Cambridge Electric Light Co., D.P.U. 92-250, at 178 and 194.

3
4 Q. Did the process achieve these goals?

5 A. Yes. By using an initial rate class increase guideline of 125% of the total
6 average increase, subject to modifications to conform to the restructuring
7 guidelines, FG&E balances the goals of fairness and continuity. The process
8 also achieves efficiency by setting the most inelastic component of the bill as
9 close to marginal costs as possible, while considering restructuring
10 constraints. Simplicity is accomplished by FG&E's current rate structure,
11 which is easy for customers to understand and straightforward to administer.
12 It is comprised of only three components: customer charges, single block
13 energy charges, and single-block demand charges. Large customers have a
14 time of use energy charge. Finally, establishing a rate design structure for
15 each rate class that produces revenues to cover the cost of serving that class
16 within the limitations of restructuring achieves the goal of revenue stability.

17

18 **B. DEVELOPMENT OF RATES**

19 Q. What rates were developed under the new rate structure?

20 A. FG&E developed eight rates:

21 Residential Delivery Service Rate RD-1 ("RD-1");

22 Low Income Residential Delivery Service Rate RD-2 ("RD-2");

1 Small General Delivery Service Rate GD-1 ("GD-1");
2 Regular General Delivery Service Rate GD-2 ("GD-2");
3 Large General Delivery Service Rate GD-3 ("GD-3");
4 Optional General Delivery Time-Of-Use Rate GD-4 ("GD-4");
5 Water and/or Space Heating Delivery Rate GD-5 ("GD-5"); and
6 Outdoor Lighting Delivery Rate SD ("SD").
7

8 Q. Please describe the development of the RD-1 and RD-2 rates.

9 A. First, the revenue target was identified. As shown on Schedule KMA-3
10 (Electric), Page 1 of 5, the revenue target is \$8,028,710. Second, distribution
11 marginal costs were identified and are summarized at the top of the page.
12 Third, the preliminary rate design was developed by setting the energy charge
13 to marginal cost. Fourth, the remaining revenue was reconciled on the
14 customer charge. The RD-2 rate components were initially set at 60% of the
15 RD-1 customer and energy rates, providing a discount of 40% compared to
16 RD-1 rates.
17

18 In the fifth step, the preliminary rates were adjusted by applying the total
19 increase for the class to each rate component. The sixth step was to determine
20 the optimal UTC, which must be equal across all customer classes. Please
21 refer to Schedule KMA-4 (Electric).
22

1 The sixth step required that all rate schedules be calculated through this
2 interim proposed rate design stage. Once this was accomplished, the initial
3 transition charge for each customer class was determined based on the class-
4 specific rate limitations imposed by restructuring. The total transition charge
5 revenue was calculated and a UTC determined. As shown on Schedule KMA-
6 4 (Electric), the UTC is \$0.01357 per kWh. This UTC rate replaced the initial
7 calculated transition charge for each customer class. The revenue shift caused
8 by this substitution required additional refinements to distribution rate
9 components to arrive at the final customer charges and energy rates necessary
10 to comply with the restructuring rate cap limitation.

11

12 In the case of RD-1 and RD-2, FG&E used its August 1997 customer charges
13 as a starting point for developing the final customer charges. FG&E simply
14 applied inflation to the August 1997 customer charges and then discounted the
15 rate by 15%. The remaining revenue was then reconciled on the energy
16 component. FG&E used this approach for its smallest classes of customers,
17 including GD-1, to minimize individual customer bill impacts. This resulted
18 in an increase to the customer charge of \$0.42, from the current charge of
19 \$2.60 to \$3.02 for RD-1.

20

21 The final rate design for RD-2 was calculated the same way so that the
22 inflation adjusted rate reduction is maintained.

1 Compliance with the restructuring rate cap limitation is shown on Schedule
2 KMA-5 (Electric). These are the same models that are used in FG&E's annual
3 reconciliation mechanism and inflation adjustment filings. Pages 1 and 2 of
4 Schedule KMA-5 (Electric) provide the compliance calculation for RD-1 and
5 RD-2, respectively.
6

7 Q. Please describe the development of the GD-1 rate.

8 A. The rate design for GD-1 is provided on page 2 of Schedule KMA-3
9 (Electric). The same process that was used for the development of the RD-1
10 rate was followed. After the UTC was optimized, the customer charge was
11 increased from \$5.91 to \$6.83 to comply with the restructuring class rate cap
12 and minimize individual customer impacts. The compliance calculations are
13 presented on page 3 of Schedule KMA-5 (Electric).
14

15 Q. Please describe the development of the GD-2, GD-4 and GD-5 rates.

16 A. The rate design for these classes is provided on page 3 of Schedule KMA-3
17 (Electric). The same process was used for these classes as was used for RD-1.
18 After the UTC was optimized, the customer charge was set at \$6.83 for GD-2
19 and GD-4, which is the same rate as GD-1. The customer charge was set at
20 \$0.00 for GD-5 since this rate is a rider for rate GD-2. The preliminary
21 customer charge is \$27.83 and the current charges are \$0.13 for GD-2 and
22 GD-5, and \$3.43 for GD-4.

1 FG&E determined that the methodology applied to the smaller rate class
2 would not provide a sufficient customer charge for larger customers when
3 compared to marginal costs. Therefore, FG&E proposed to move the
4 customer charge toward the marginal costs of \$44.96. The remaining revenue
5 was then reconciled on the energy component and demand components.

6
7 The same ratio between energy (on and off peak for GD-4) and demand
8 revenues that are in current rates was maintained in this calculation in order to
9 keep individual customer bill impacts close to the 15% rate reduction. The
10 compliance calculations for GD-2, GD-4, and GD-5 are provided on page 4, 6,
11 and 7 of Schedule KMA-5 (Electric), respectively.

12

13 Q. Please describe the development of the GD-3 rate.

14 A. The rate design for this class is provided on page 4 of Schedule KMA-3
15 (Electric). The same process was followed for the development of the GD-3
16 rate as was used for GD-4. After the UTC was optimized, the customer charge
17 was set at \$500.00. The preliminary customer charge is \$1,282.51 and the
18 current charge is \$0.13. FG&E determined that the methodology applied to
19 the smaller rate class would not provide a sufficient customer charge for larger
20 customers when compared to marginal costs. Therefore, FG&E proposed to
21 move the customer charge toward the marginal costs of \$1,505.15. The

1 remaining revenue was then reconciled on the on and off peak energy
2 components and demand component.
3

4 The same ratio between on and off peak energy and demand revenues that are
5 in current rates was maintained in this calculation in order to keep individual
6 customer bill impacts close to the 15% rate reduction. The compliance
7 calculation for GD-3 is provided on page 5 of Schedule KMA-5 (Electric).
8

9 Q. Please describe the development of the OL rate.

10 A. The rate design for this class is provided on page 5 of Schedule KMA-3
11 (Electric). First, the revenue target was identified.²
12 Second, current rates were summarized as shown on top of page 5. Next,
13 current rates were adjusted by applying the total increase for the class to each
14 rate component. As done for all other classes, the revenue shift caused by
15 substituting the UTC for the class transition charge required additional
16 refinements to distribution rate components to arrive at the final customer
17 charges and energy rates necessary to comply with the restructuring rate cap
18 limitation. FG&E performed these refinements by adjusting the luminaire
19 charge and energy charges by an equal percentage to meet the adjusted

² Due to the significant administrative burden and cost associated with performing a marginal cost study for streetlights, FG&E did not complete such a study and therefore the rate design steps for this class are modified.

1 revenue target. Pages 8 and 9 of Schedule KMA-5 (Electric) provide the
2 compliance calculation for SD.
3

4 Q. Did FG&E perform a test for accuracy of its test year billing determinants?

5 A. Yes, Schedule KMA-6 (Electric) provides a calculation of the accuracy of the
6 test year billing determinants for demand and energy. In order to obtain an
7 accurate count of bills for use in rate design, FG&E divided customer charge
8 revenues by the customer charge. FG&E did the same for luminaire charges
9 to determine number of lights. The resulting accuracy factor is diminimus,
10 and therefore it was unnecessary to make an adjustment to billing
11 determinants in the rate design process.
12

13 **VI. BILL IMPACTS**

14 Q. Have you provided bill impacts to show how the proposed rates compare to
15 inflation adjusted August 1997 levels?

16 A. Yes, as shown on Schedule KMA-7 (Electric).
17

18 Q. Have you provided bill impacts of the proposed rates versus present rates?

19 A. Yes, Schedule KMA-8 (Electric) provides bill impacts of the proposed rates
20 versus current rates for all customer classes. The bill impact schedule also
21 provides the percentage of bills that fall within a specified range of usage. It
22 is important to note that this presentation reflects number of bills within a

1 range, and does not necessarily represent individual customer impacts. An
2 individual customer's twelve monthly bills could fall in any of the ranges.
3 The charges under "present rates" represent rates effective January 1, 2002.
4
5 The proposed rates include changes to distribution charges and transition
6 charges proposed for effect June 1, 2002. Some customer classes will see
7 increases versus current rates since the class was receiving more than the
8 required 15% rate reduction. Individual bills may be impacted as well due to
9 changes in rate components resulting from the rate design process.

10

11 **VII. CONCLUSION**

12 Q. Does this conclude your testimony?

13 A. Yes, it does.